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The EXTENSION ANIMAL HUSBANDMAN

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THE EXTENSION ANIMAL HUSBANDMAN

Issued quarterly by the Bureau of Animal Industry
and Extension Service, Cooperating.
C. D. Lowe, Senior Extension Animal Husbandman,
K. F. Warner, Senior Extension Meat Specialist.

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COUNTY BEEF-CATTLE SHOW HERDS IN KANSAS

By J. J. Moxley, Extension Specialist in Animal Husbandry,
Kansas State College.

- - -

Kansas purebred-beef-cattle producers cooperated on a county and district basis in 1936 to exhibit their stock at county, district, and the State shows. This movement was started at a State meeting of the breeders in November, 1935. The purpose of this plan was to encourage the production and development of superior breeding cattle, to bring recognition to breeders producing these cattle, and to interest the farmers in the merits of good cattle. The results of the first year's showing reveal these facts: 49 new Hereford exhibitors showed 116 Herefords for the first time; 11 Angus breeders showed 27 Angus for the first time; and 12 Shorthorn breeders showed 30 Shorthorns for the first time.

A total of 72 new exhibitors were put into the limelight, and in rural fashion, each had his home communities backing his initial efforts with the result that the State Fair ringside had more interested spectators than at any time in its history.

The Hereford and Shorthorn breeders were organized on a county basis, while the Angus breeders, because of smaller numbers, were organized on a district basis. After each county or district association was organized, plans were developed for a local preliminary show in the winter or spring for the selection of prospects to be fitted for each class, for a publicity program through the press, tours and field days, and for a final selection of the county show herd just previous to the exhibition at the State fairs.

As in the selection of any all-county or school athletic team, the members comprising the group soon became representatives of not only themselves as breeders but of the county as well.

The rulings under which the county show herds were conducted are as follows:

Suggested Requirements for County Show Herds
To qualify them to show at the Kansas State Fair in 1936

1. Only a county that has held a local show may be represented in the county herd classification at these State shows.

2. A county herd for the State fair shall consist of 10 animals, including:

One	bull	calved	between	Jan. 1, 1935 and April 30, 1935
"	"	"	"	May 1, 1935 and August 31, 1935
"	"	"	"	Sept. 1, 1935 and Dec. 31, 1935
"	"	"	"	Jan. 1, 1936 and April 30, 1936
"	heifer	"	"	Jan. 1, 1935 and April 30, 1935
"	"	"	"	May 1, 1935 and August 31, 1935
"	"	"	"	Sept. 1, 1935 and Dec. 31, 1935
"	"	"	"	Jan. 1, 1936 and April 30, 1936

One other bull eligible to one of above age requirements and one other heifer eligible to one of above age requirements.
A herd must be owned by at least four exhibitors and no one exhibitor can furnish over four animals to the group.

3. Only one such herd may be shown from each county, but these 10 animals constituting such a group need not be designated until after the individual classes have been judged.

4. Individual animals of such herd may be shown in the individual class providing they are properly entered in their owner's name and entry fee is paid.

5. Only herds that were represented at the local county preliminary show can have animals included in the county show herds. (Exception to this rule can be made if insufficient animals were shown at the local preliminary show and adverse weather conditions were experienced, then animals may be selected by the local county show officials from herds that had animals entered but could not exhibit).

6. Preference should be given animals that win at the local show. Other animals may be chosen to displace any such winners providing, however, they meet the requirements of rule 5 and also providing it is for the purpose of completing a satisfactory group due to the lack of cooperation of certain local exhibitors or the lack of condition or bloom of certain animals that won at the local show.

7. Only Kansas cattle may be shown in these groups.

8. Animals shown in the county show herd must have been owned by the exhibitor at least four months prior to the State show.

9. Breeders that have been represented in more than two State or national shows during 1934 and 1935 are not eligible to compete for the county show herd.

10. Each individual having one or more animals in the selected group which goes to the State show, must be a member of the respective

State breed association. The local county organization shall be responsible for the collection of these memberships.

11. All animals in the county groups exhibited at the State shows shall have a veterinarian's certificate that the animals are free from tuberculosis and Bang's disease.

12. Final decision on eligibility shall rest with a committee composed of the president, vice-president, and secretary of the State breed organization.

Yearlings and calves only were shown as they are cheaper to feed and fit for show; there is less possibility of any damage due to over-feeding; and once fitted, they can be sold at a desirable age. Kansas breeders seldom keep bulls until they are two years of age.

Observations of Results Obtained

1. The age requirements proved to be satisfactory.

2. A local association with "live" officers is essential.

3. A preliminary show for the selection of prospects is advisable to obtain the most support from breeders as well as the rest of the county. Only two county herds out of 13 did not materialize where a preliminary show was held, while five out of seven counties failed to get their complete herds on exhibition where farm selection was used to pick the prospects.

4. It is advisable to encourage the development of more than one prospect for each class if satisfactory individuals can be obtained. Several county groups did not exhibit because one or more individuals did not feed well or because the owner neglected them. As a safeguard to stimulate good care, it is necessary to make a final selection which may or may not pick the same animals as the preliminary one.

5. It is necessary to have some added money for the amateur exhibitors at the State fairs in order to allow them enough winnings to about break even on their expenses. This may be on the county group class where competition is only between the county groups of ten head, or it may be in the addition of a lengthened prize list in the individual classes. Direct competition with professional exhibitors may be financially embarrassing to small breeders if the premium money is not strung out.

6. The breeders who have been out on the firing line of show-ring competition are now the most enthusiastic supporters of the whole

extension beef-cattle program and are themselves the ones who are looking for better bulls.

7. The purebred beef industry in Kansas now has 78 aggressive leaders in the showring as compared to 6 that formerly made the State fairs. The support behind them in the State is in about the same proportion.

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PERSONNEL NOTES

Idaho

E. F. Rinehart, Extension Animal Husbandman, was on a ten-day educational tour of eastern packing and meat distribution centers in October as the representative of the Idaho Cattle Raisers' Association.

Illinois

Harry Russell, an animal husbandry graduate of the University of Illinois, was added to the Illinois extension staff in animal husbandry work on December 15. Mr. Russell for several years has been associated with the Doane Farm Management Agency in St. Louis, Missouri.

Maryland

Joseph M. Vial, Specialist in Animal Husbandry, acted as judge at one of P. T. Brown's Gold Medal Colt Club shows in Indiana last summer.

North Carolina

L. I. Case, Extension Specialist in Animal Husbandry, headed a delegation of 12 North Carolina county and district agents which attended the Feeder Calf Show and Sale and 4-H Club Jubilee at Jackson's Mill, W. Va., in September for the purpose of getting first-hand information regarding those events and other animal husbandry activities in the "Mountaineer" State.

Texas

Roy W. Snyder, for several years Meat Extension Specialist on the staff of the Texas A. & M. College, has been made supervisor of specialist activities at the same institution.

E. M. Regenbrecht, Swine Specialist, was superintendent of the All-American Swine Show of the Texas Centennial Exposition at Dallas in October.

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But neither logic nor the ticking of the clock make up the essence of personality. --E. V. Wilcox

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ALABAMA HOLDS TON-LITTER CONTEST

By F. W. Burns, Extension Animal Husbandman,
Alabama Polytechnic Institute.

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The five essential factors for economical pork production in Alabama are: (1) well-bred hogs, (2) large litters, (3) plenty of well-balanced, home-grown feed, (4) a succession of forage crops and, (5) proper management. Realizing that all these factors should be stressed in our pork-production program, a ton-litter show and sale was arranged in cooperation with the Union Stock Yards at Montgomery and the packers. Prizes totaling $250 were awarded by the commission men and stock yards and the packers agreed to pay Chicago prices for all litters that weighed over 1,200 pounds and each individual pig, in the litter, weighing over 160 pounds. County agents and county officers of the County Corn-Hog Control Associations urged hog producers to breed their sows to purebred boars in November so as to have March-farrowed pigs for this demonstration.

News letters were sent to all counties during the winter and early spring on the feeding and management of the brood sow and the care and feeding of the sow and litter at farrowing time. During March and April 86 entries from 29 counties were ear-marked and entries sent to this office. These contestants were then sent timely news letters and, in addition, this information was sent to the county agents.

On September 9-10, 1936, the show and sale were held with 29 qualifying entries from 17 counties present. The champion litter was owned by W. C. Wingard, a 4-H club boy from Montgomery. This litter of 9 crossbred Duroc-Jersey - Poland China hogs weighed 1,975 pounds at 166 days of age. The feed cost on the litter was $105.37. The litter brought $217.25, not including prizes, or a profit of $111.88 above feed cost.

A study of the records of the demonstrators who successfully completed the work shows the following interesting facts:

1. The average weight of all hogs exhibited was 215 pounds. This clearly demonstrates the fact that a number one hog (180-240 pounds) can be produced in six months.

2. The average age of all hogs in the contest was 182 days.

3. The average daily gain per hog was 1.18 pounds.

4. The average feed cost per pound of pork under this method

of feeding was 5.6 cents. Since all hogs sold for 11 cents per pound, we had a margin of 5.4 cents to cover other expenses.

5. The average amount of concentrates (grain and supplement) required for 100 pounds of gain was 350.3 pounds. Since most producers used approximately 50 pounds of protein supplement for 100 pounds of gain, we find that it took about 5.3 bushels of corn plus the supplement to produce 100 pounds of pork. This small grain requirement can be largely attributed to the fact that a succession of forage crops were used by most demonstrators. Pasture not only reduces the cost of gains, but tends to reduce infestation from parasites, particularly where temporary grazing crops are used.

6. A study of the parasite infestation at the packing plant showed the following:

38.4	percent	livers	not infested
37.2	"	"	lightly infested
14.9	"	"	medium infested
9.5	"	"	heavily infested

This is a decided improvement over the average run of Alabama hogs but indicates that still further work must be done on swine sanitation in our future demonstrations.

7. The average dressing percentage of all contest hogs was 76.68.

Similar demonstrations will be held in 1937 in cooperation with the stock yards and packers at both Birmingham and Montgomery in order to reduce the distance necessary to travel to exhibit hogs in the State contests. It is our belief that this demonstration, which touches all phases of hog production, is one of the best means of promoting pork production in Alabama.

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AMERICAN SOCIETY OF ANIMAL PRODUCTION

The recent annual meeting of the above organization held at Chicago on November 27-29, 1936, was very successful from the standpoint of both program and attendance. Forty-two extension animal husbandmen from 27 different States were in attendance. Officers for the extension section to serve during the ensuing year are: Jas. J. Lacey, Wisconsin, Chairman; T. A. Ewing, Missouri, Vice-Chairman; and W. E. Morris, Minnesota, Secretary. All extension specialists in animal husbandry should be members of this body. Thos who are not should send their applications for membership together with the annual fee of $2.50 to Dr. Jay L. Lush, Secretary-Treasurer, American Society of Animal Production, Iowa State College, Ames, Iowa.

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BEEF CATTLE WORK IN WASHINGTON

By Con S. Maddox, Extension Animal Husbandman,
State College of Washington.

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Increased beef-cattle production in the State of Washington has received major consideration in the past few years. The primary reasons for this sudden interest in the industry are:

1. Increasingly large quantities of feed such as legumes and grain hay that could best be utilized by raising and feeding to beef cattle.

2. Wheat farmers in the State operate on a very large scale and until recent years have used horses and mules. In the past few years the Diesel tractor has replaced many horses and mules and, of course, has made large quantities of grain and hay available for beef-cattle production.

3. Prices of grain have been such that more profit could be made by marketing the grain through livestock than by selling the grain for cash.

4. An increased appreciation of good-quality meats by the consumers in the Pacific Northwest has been evident. This has made for a better market for grain-finished beef than was the case a few years ago.

The greatest need of the industry within the State unquestionably was a substantial improvement in the quality of the beef stock and more grain finish on cattle of better quality when marketed.

In order to acquaint a greater number of farmers with the difference in the grades of feeder cattle and to show them the reasons why an improvement in quality was desirable, grading demonstrations were held throughout the beef-producing sections of the State during 1935 and 1936.

At a grading demonstration on the Yakima Indian Reservation for example, over three hundred head of cattle were graded in the morning and that afternoon the cattle so graded were sold at auction. These cattle were purchased by farmers in the State and the following is the tabulation of the sales of some of the calves:

Number	Grade	Price per cwt.	Av. weight (pounds)	Value per head
27	Good	$6.00	474	$28.44
19	Medium	5.00	455	22.75
17	Common	3.90	430	16.77

This demonstration and similar demonstrations brought out rather conclusively the value of good-quality stock. Up to this time, we lacked information as to exactly what the various grades of feeder cattle were worth under Washington or Pacific Northwest conditions. We do not have the official market news services from Portland, Spokane and other local markets that are available from the Corn Belt markets. These demonstrations gave us information that was much needed. In the above auction, ten Good calves were worth $56.90 more than ten Medium calves and ten Good calves were worth $116.70 more than ten Common calves.

Farmers who saw these demonstrations were not hard to convince that a good purebred bull was a worthy investment for a herd. Similar demonstrations have been conducted in various sections of the State.

Cost of Producing Beef Cattle

Many farmers starting into the beef business were quite anxious to know just how much grain and hay it took to produce calves. In other words, how much it cost to carry breeding herds for one year. Farmers suddenly found themselves with tremendous amounts of roughage and forage for winter and summer feeding because of:

1. A smaller number of horses being used for work.

2. As a result of contracted acres under (1) the agricultural adjustment program and (2) the agricultural conservation program carried on by the Soil Conservation Service and the Agricultural Adjustment Administration.

Many cooperators who gave us records on their farm operations used one and one-tenth tons of hay per head in caring for their breeding herds. The information from these 92 records during 1935-36 brought out the fact that in certain areas more hay and straw was required for each head of livestock through the longer winter season than in other counties. Other valuable information which these records provided was as follows:

Effect of Type of Pasture on Beef Enterprise Income

Pasture		Average size of herd	Income per $100 invested*	Income per head	Percent		Labor hours per head
					Calf crop	Deaths	
Tame	(Sweet clover, (Crested wheat (grass, alfal- (fa, etc.	40	$16.70	$13.44	92	3	23
Wild	(Private range (National "	107	$19.80	$9.00	83	3	26

Influence of Calf Crop on Beef Enterprise Income in "Tame Pasture" Herds

Percent calf crop	Income per $100 invested*
100-91	$21.14
90-81	14.00
80-71	3.76
70-under	0.96

Influence of Size of Herd on Beef Enterprise Income

Number in Herd	Number Herds	Income per $100* invested
0-50	32	$15.14
50-100	29	17.88
100-over	31	19.49

Relation of Management Factors
for the
10 High and 10 Low Income Beef Farms

Profit	Size of herd	Profit or loss per head	Feed cost per head	Percent calf crop	Percent deaths	Building value per unit	Hours labor per head
10 High	70	$27.68	$14.07	93	3	$5.88	23
10 Low	64	$3.64	$21.15	78	5	$25.40	36

* Income per $100 invested is calculated by dividing "Beef Enterprise Income" by the number of hundred dollars invested in beef cattle, beef buildings, and beef equipment. To put all farms on a comparable basis, land values were not included, as some of the farmers owned their pastures and others rented pasture land.

Management factors and production methods were discussed in most of the beef-producing counties during the summer while legume and livestock tours were being conducted. These tours seemed to be successful for several reasons:

1. They gave the farmers an opportunity to see exactly what was being done on other farms.

2. A new man in the business can get many helpful ideas as to convenient arrangements of equipment and things of that type on a tour that cannot otherwise be secured very easily.

3. Actually seeing the stock, equipment, pastures, etc., tells the story much more convincingly than lectures or chart talks.

Fattening Beef Cattle

This problem received major consideration during 1935-36 and is one of greatest concern to many of our cattlemen.

In the late summer and fall it has been the plan of the extension animal husbandman to hold county-wide meetings in the large cattle-feeding counties and discuss with those present the livestock situation with respect to cattle supplies, prospective prices for feeders in the fall, and prospective market conditions for the various grades of cattle during the winter and spring, also the starting of cattle on feed, kinds of grain and hay to be used, the preparation of these feeds, feeds required for fattening various ages of cattle and the necessary selling price of cattle with varying prices of grain and hay.

These meetings are followed by a series of cattle feeders' tours during the fall about the time the cattle are placed on feed. This gives feeders a chance to raise questions as to what kinds of feeds may be used to get cheap gains early in the fattening period, also about starting cattle on feed. They have an opportunity to see the cattle belonging to other farmers in the community and they are particularly interested then in planning another tour in the spring of the year just before the cattle are to be marketed. This spring tour gives a splendid opportunity to show what will happen when the right kind of rations are fed and the cattle are well cared for. On these spring tours complete information as to what each lot of cattle weigh, how much grain they are eating, how much hay is being fed per head per day and similar information is furnished each member of the tour.

When the cattle are sold, those persons who attended the tours are supplied with information as to starting and final weights as well as the total amount of grain and hay fed each lot of cattle. We do not quote the cost or selling price of the cattle but we are able to give the farmers all other information. In this way it gives all cooperators rather complete information on cattle that have been seen at least at the beginning and the close of the fattening period. The men who have had the best results are those who have (1) fed medium to good quality cattle, (2) used a ration consisting of 40 percent wheat, 40 percent barley and 20 percent oats, (3) have ground their grain to a rather medium condition, not fine or not too coarse, (4) have fed chopped hay, and (5) have fed at least some legume hay (protein concentrates have not necessarily been justified).

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STATISTICAL RESULTS OF COOPERATIVE EXTENSION WORK

The following statistics are taken from Extension Service Circular 244 "Statistical Results of Cooperative Extension Work, 1935" which is obtainable from Extension Service, U. S. Department of Agriculture, Washington, D. C.

Percentage of Agent's and Specialist's Time Devoted to Animal Husbandry Projects

1931	1932	1933	1934	1935
6.7	6.8	5.5	11.6	9.0

Animal Husbandry Extension Work with Boys and Girls, 1935

Kind of stock	No. boys enrolled	No. girls enrolled	No. boys completing	No. girls completing	No. animals involved
Beef cattle	20,000	2,473	14,520	1,963	21,253
Sheep	15,582	2,419	11,897	1,953	38,567
Swine	56,667	4,213	35,008	2,426	81,870
Work stock	5,212	403	3,806	314	3,861

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"Who learns and learns
But does not what he knows
Is one who plows and plows
But never sows."

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LIVESTOCK EXTENSION ACTIVITIES IN FLORIDA

By Walter J. Sheely, Agent in Animal Husbandry,
Florida Agricultural Extension Service.

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Due to tick infestation and quarantine, Florida cattle for many years could not be shipped outside the State unless accompanied by a tick-free certificate. In 1925, the zoning system of tick eradication was put into effect in the State. Unfortunately, many owners sold their cattle preceding tick eradication, expecting to restock after tick eradication was completed. The Extension Service advised cattlemen against this selling-out practice. However, Florida cattle numbers decreased 34 percent from 1925 to 1930. Many progressive cattlemen saved their good breeding animals and, by using good bulls, made marked improvement in the quality of their cattle in succeeding years, and Florida cattle numbers increased 11 percent from 1930 to 1933.

With few purebred breeders in Florida and a long distance from the purebred beef breeding centers, it has been a problem to get sufficient purebred bulls to meet demands. The extension force has been and is very active in putting our cattlemen, livestock dealers, and livestock associations in touch with breeders of bulls in other States and in bringing bulls into the State. So far this year about 700 beef bulls have been placed for herd improvement. One of our local meat packers is rendering a great service to the industry by furnishing purebred bulls to cattlemen and taking in payment for them scrub bulls and any other class of cattle at market prices.

Field days and feeding and breeding demondstrations have been held in many sections of the State. In these events we point out the class of animals to breed, the class of calves to develop for breeding animals, and the grade of steers that are wanted for feeding and slaughter. The fat stock shows held the last two years at Jacksonville have been a great incentive to the breeding and feeding out of good animals.

In the field of management, the extension force has put emphasis on the necessity of securing a maximum early calf crop and pointed out that to do this, pasture and range must be improved and at times supplemented especially for bulls during the winter, for weak cows, and for developing the most promising heifers for herd replacements. Furthermore, that winter feed must be provided either by saving winter range or by the preparation of silage or other feeds.

The Florida Experiment Station, in its feeding trials, has demonstrated the fact that well-bred Florida steers will respond readily to feed and finish out into a good quality of beef.

While Florida cattlemen formerly were restricted to markets within the State, last year, 1935, for the first time, Florida calves were sold on outside markets in considerable numbers. This year, to date, more than 15,000 Florida calves have been sold outside the State. Some of the calves graded Choice with many going into the Good class. This calf movement to outside markets speaks well for improvement in the quality of Florida cattle.

The first trench silo for beef-cattle use in Florida was constructed in Jackson County in 1931. Since then, trench silos have been provided in Alachua, Bay, Escambia, Flagler, Hernando, Holmes, Jackson, Jefferson, Lafayette, Levy, Liberty, Madison, Marion, Okaloosa, St. Johns, Santa Rosa, Suwannee, Taylor, and Walton Counties.

Swine demonstrations have been designed especially for economical hog production for home use and for market through the use of home-grown feed. The extension program and market demand have been responsible in a change for the better in the type of hogs produced in the State. Demonstrations with farmers and 4-H Club boys have had much to do with hog-type improvement, and meat-cutting demonstrations in which well-bred hogs and scrub hogs have been compared in the carcass, have been largely responsible for the quality improvement. County agents have been very active in selecting purebred boars to aid in improving the type and quality of hogs. Recently, 445 purebred boars were placed in 23 counties of the State. As a proof of the quality of the hogs being produced in Florida, one of the southern packers made this statement: "There has been a marked improvement in the size and quality of hogs coming to our plant from Florida in the past five years, due to better methods of breeding and feeding."

Meat cutting and curing demonstrations have been used for a two-fold purpose; first, to cure a good article of food for home consumption, and second, to improve the quality of hogs that were raised for both home use and the market. In 1931, K. F. Warner, meat extension specialist of the U. S. Department of Agriculture, aided us in putting on a number of meat-cutting demonstrations in various parts of the State. At Monticello, he helped with a "mild" curing project. Later, he gave a meat-cutting demonstration before the county and home demonstration agents in their annual meeting here at Gainesville. In this work, instructions were given on methods of obtaining a mild cure. Since that time, meat-cutting and curing demonstrations have been held by the writer, by Dr. A. L. Shealy of the Florida Experiment Station, and by the various county agents in practically all the hog-producing counties of the State.

A number of county agents, in cooperation with farmers, have slaughtered hogs, and cut and cured meat which was exhibited at the South Florida Fair, where it made an attractive show and carried home the lesson of good home cured meat to many visitors.

All these things have changed the appearance of the meat cured in the cold storage plants of Florida as compared with that of five years ago. In addition, both the cold storage man and the farmer have been benefited by the mild-cure process in that less salt is needed for curing than in former years and the product is more desirable. These demonstrations of cutting and curing meat in cold storage is handled cooperatively with the cold storage people, the farmers, the county agents and home demonstration agents, and the college.

Since 1932, cold storage meat-curing plants have been put in operation at Dunnellon, High Springs, Chiefland, Dade City, Lake City, Mayo, Live Oak, Newberry, Madison, Monticello, Quincy, Havana, Marianna, Graceville, and Wellborn. Six new cold storage plants have been put in this year. There are now 47 of these plants in 21 counties. Twenty of the 47 plants are owned by individuals and most are operated in connection with ice and power plants. Last season 5,763,813 pounds of meat was reported as being cured in the cold storage plants with more than 100,000 pounds cured in ice boxes. In all this meat curing work, the standard 8-2-2 dry cure is recommended--8 pounds of salt, 2 pounds of sugar, and 2 ounces of saltpeter.

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PIGLETS AND PRIZES

At the Texas Centennial All-American Swine Show in Dallas last week a Poland China sow named Royal Lady farrowed eleven shoats between noon and 2 p.m., entered the show ring and won the senior yearling blue ribbon and a $20 prize, returned to her pen and delivered another piglet, returned to the ring and won the senior championship and a $10 prize, returned to her pen and delivered piglet No. 13, returned to the ring and won the grand championship and another $10 prize. --From Nov. 2, 1936, issue of "Time".

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PORK CURING AT COLD STORAGE PLANTS

An estimated tonnage of one million six hundred thousand pounds of pork was cured by 40 cold storage plants, serving approximately 77 hundred Mississippi farmers, during the 1935-36 season. The 34 plants on which definite reports have been received to date cured 1,470,995 pounds of pork for 7,107 patrons. A total of 695,251 pounds of meat were smoked by 20 plants. -- Paul F. Newell

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WHAT FARMERS WANT IN WORK STOCK

In order to secure direct information regarding individual work stock preferred by farmers The Horse and Mule Association of America recently interviewed average farmers in 12 midwestern States and took actual measurements of horses and mules which just suited their owners. A summarized report of the survey follows:

A total of 243 work horses and 53 work mules were thus measured and checked. The horses averaged 62.65 inches in height, which is 15 hands 2-2/3 inches, (a hand is 4 inches), girthed 80.04 inches, had body length of 40.48 inches and floor of chest was 33.09 inches from ground. Of the 243 horses measured, 64 were, in height at withers, over 63 and under 64 inches: 59 were over 62 and under 63 inches: 30 were over 61 and under 62 inches: and 17 were over 60 and under 61 inches. No less than 70 percent of the 243 horses selected by the farmers themselves, as just what they wanted, were between 60 and 64 inches, - that is from 15 up to 16 hands in height.

In mules, 53 were selected as just what they wanted, by farmers, and measured. They averaged 62.8 inches in height at withers, girthed 78.06 inches, had body length of 40.44 inches and were 33.99 inches from ground to floor of chest. It will be noted that their average height and length of body was almost the same as with the horses, but heart girth was about 2 inches less and distance from ground to floor of chest was 0.9 inch more. In other words they were almost an inch longer in leg, but no higher at top of withers: but the percentage of mules that were between 15 and 16 hands high was less than in horses, only 47.17 percent of the mules falling within those limits. The set of legs was generally very good on horses and mules preferred by farmers, and a great many said they preferred a certain animal because it walked faster, turned quicker, or stood hot weather better. In other words, a fast walk, alertness, and ability to endure hard work in the heat, were clearly recognized by farmers as assets in their work animals.

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TEACHING AIDS

Let us consider the outstanding avenues of approach to our minds. We get most of our messages through sight. That characteristic is called eye-mindedness. We receive a great many messages through the ear, and that is called ear-mindedness. We receive many other messages through the tactile senses and this is commonly called manual-mindedness because we handle things with our hands, but it may be any sense of touch--the learner jumps into a job and helps to do it. This performance is always very important because through participation we learn the details which otherwise would be learned with great difficulty. Everybody is eye-minded, ear-minded, and manual-minded. Some are more dominantly one way than another. The "tools" for teaching must be used to reach the individual through all of these entrances to his mind.

--A. B. Graham

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SOME FEDERAL RESEARCH RESULTS

The following has been excerpted from the 1936 annual report of the Chief of the Bureau of Animal Industry to the Secretary of Agriculture.

Meat Investigations

Study of carcass data on 279 hogs within the narrow range of 215 to 234 pounds in final feed-lot weight showed that as the type of hog decreased from large to small there were attendant decreases in ham weight and percentage of weight of ham to final feed-lot weight. These were accompanied by decreases in percentage of lean and inedible portion. However, as previously reported, with decrease in type there were attendant increases in plumpness, percentage of fat, and percentage of total edible meat. The smaller the type of hog, the lighter the slaughter weight may be to yield a given percentage of edible meat in the hams.

Data on 306 hogs of approximately 225 pounds live weight, varying widely in type, breeding, and other factors, showed that length of hind leg from the aitch bone to the toe, divided by width of carcass through the shoulders, is promising as an index of type of hog.

In cooperation with the North Carolina Agricultural Experiment Station, a 2-year comparison of the meat of hogs retarded in their growth with that of hogs making approximately normal growth indicated that the roasted meat of the former group was slightly less tender and less juicy than that of the latter. It was also less tender and juicy than the meat of hogs similarly retarded in their growth to a weight of approximately 100 pounds and then finished on a grain ration full-fed in dry lot. The slower rate of growth was obtained through extensive use of pasture with restricted feeding of grain; the normal growth, through full feeding of grain in dry lot. All hogs were taken off feed at a final weight of approximately 225 pounds. The profit per pig above feed cost, including pasture, was much less for the pigs retarded in growth throughout the entire experiment than for those in either of the other two groups.

In carcass studies involving 40 Landrace hogs and 36 hogs of two American breeds, the chilled dressed carcasses of the former produced higher percentages of ham, loin, and bacon, and lower percentages of picnic shoulder and head than the carcasses of the latter group. The higher yield of bacon which accompanied the higher yields of ham and loin in the case of the Landrace hogs is of special interest, since ordinarily there is less bacon as hogs yield higher

percentages of ham and loin, whereas with the Landrace hogs the decrease was in less valuable cuts. x x x x x

Suckling lambs on pasture without additional grain feeding made practically as large gains and as high-grade carcasses as similar suckling lambs creep-fed grain on pasture, according to a summary of 3 years' work in cooperation with the Tennessee Agricultural Experiment Station. Ninety-two lambs receiving no supplemental grain averaged 84.8 pounds of live weight at the close of a 107-day period; the 94 creep-fed lambs averaged 87.2 pounds. Both groups dressed 48.8 percent and were graded low choice. These results are in accord with those of previous tests conducted in other regions and show conclusively the high value of good pasture for suckling lambs. x x x x x

Analysis of data on carcasses of beef-type and dual-purpose-type Shorthorn cattle fed to about 900 pounds showed significant differences in dressing percentage and percentages of separable fat, lean, total edible meat, and bone. The average values for the respective types were as follows: Dressing percentage, 60.2 and 57.4; percentage of separable fat, 30.8 and 22.0; percentage of separable lean, 52.5 and 57.7; percentage of total edible meat, 83.3 and 79.7; percentage of bone, 16.7 and 20.3. In carcass grade there was an average difference of approximately one and one-third grades between the two types of cattle, that of the beef-type carcasses being the higher. This difference also was statistically significant. x x x x

Cattle Investigations

In record-of-performance studies at the National Agricultural Research Center 4 beef and 5 Milking Shorthorn steers were slaughtered during the year, making a total of 14 beef Shorthorns, 32 Milking Shorthorns, and 6 steers of dairy breeds that completed the fattening tests. The data obtained show the beef calves to be significantly superior to the dual-purpose calves, and the latter, in turn, to the dairy-bred calves in economy of gain, slaughter and carcass grades, and in percentage of edible meat.

Correlation studies of these data indicate that the faster gaining steers make the more economical gains. There is also a positive relationship between economy of gain and slaughter grade. At the market values prevailing at the time of the study, approximately 90 percent of the profit was brought about by the combined influence of economy of gain and slaughter grade. The data also indicate that the percentage of edible meat in the carcass can be determined not only by the carcass grade but by ratios of certain body measurements made on the live animal. With breeding constant, the percentage of fat in the carcass was found to be least in steers heaviest at weaning time, whereas steers lighter at weaning time tended to have more fat.

In breeding experiments at the United States Range Livestock Experiment Station, Miles City, Mont., in cooperation with the Montana Agricultural Experiment Station to develop superior strains of Hereford cattle adapted to the northern Great Plains, two carefully selected herd sires (somewhat more closely related than half brothers) were used. The calves of these sires scored the same, on the average, in individual excellence, in spite of the fact that one group of cows was considerably below the standard of the other. The bull used on the lower scoring cows also scored below the other bull, a fact which indicates the unreliability of present methods of judging breeding beef cattle by physical appearance only and emphasizes the value of records of performance. In a fattening test, the calves from the cows and bull having the lower scores made 11 percent greater daily gains and 6 percent more efficient gains. x x x x x

At Summerville, S. C., in 5 years' experiments to determine the effect of feeding a mineral mixture containing phosphorus and calcium on the growth and breeding qualities of beef cattle, the average birth weight of offspring from the mineral-fed heifers was essentially the same as that of calves from heifers not fed minerals, but there was an average difference of 47 pounds a head at 12 months and 109 pounds at 24 months of age in favor of those fed minerals. x x x x x

At Miles City, Mont., breeding cows wintered 141 days on reserved creek-bottom sagebrush range supplemented by 83 pounds of cottonseed cake per cow lost an average of 58 pounds but were stronger and more active than those fed a supplement of 765 pounds of alfalfa hay. The latter group lost an average of 46 pounds. The wintering costs were $2.84 and $4.51 a head, respectively, for the two groups of cows. x x x x x

At the McNeill Experiment Station, McNeill, Miss., steers grazed 170 days at the rate of one head to 10 acres gained 33 pounds a head on unburned woods pasture, compared with 64 pounds by similar steers on woods pasture burned annually for 12 years.

At Lewisburg, W. Va., 3 years' experimental data on methods of management of beef herds for calf production showed that early spring calves raised with their dams on highly productive farm land and creep-fed a grain mixture previous to weaning, at approximately 8 months of age, averaged 549 pounds in weight at that time. Similar calves on the same farm but not creep-fed weighed 514 pounds at weaning time as compared with 464 pounds for calves raised on mountain pasture. The creep-fed calves were fat enough for slaughter at weaning, whereas those not creep-fed were classed as feeders. The calves raised on the farm land but not creep-fed averaged 665 pounds after an average of 116 days of lot fattening subsequent to weaning. These experiments showed that

calves running with their dams on grass and creep-fed a grain mixture can be marketed with as good finish 3 to 4 months earlier on about half the grain required by calves fattened in the dry lot after weaning. x x x x x

Sheep Investigations

Demand for hothouse lambs in the New York and Boston trade makes their production profitable for the farmers in New England and adjacent territory who are willing to give the extra attention they require. The Bureau has been investigating the use of sheep of certain breeds that seem to be adapted to this enterprise. At Middlebury, Vt., the Bureau has found that lambs sired by Southdown rams and from cross-bred Dorset-Merino or Corriedale ewes are considerably more profitable for this purpose than Dorset lambs commonly used. During the year covered by this report the Southdown x Dorset-Merino lambs were graded top Choice and had a sale value of $13.45 per lamb; Southdown x Corriedales were graded Choice and had a value of $13.19, whereas Dorsets were graded only Good and were valued at only $8.21 for lambs weighing about 60 pounds on foot. x x x x x

In an endeavor to obtain breeds and methods of breeding that provide the most efficient range-ewe stock, the Bureau is cooperating with the Wyoming Agricultural Experiment Station in testing rams of the Lincoln, Romney, Corriedale, and Columbia breeds by mating them with high-grade range Rambouillet ewes. The need for improved mutton conformation and for fleeces of longer staple that yield a greater weight of clean wool has resulted in urgent demands of range-sheep producers for such facts as this study may reveal. One hundred ewes of uniform-age type, form, and fleece were divided into four lots of 25 ewes each. The breeding program is so designed as to make possible the mating of each lot to one of the four breeds of rams each year and, by rotation, in the course of 4 years to have each lot of ewes bred to each breed of rams thereby eliminating as far as possible errors due to individual variations in the breeding stock.

When the first crop of wether lambs was marketed, those sired by Columbias were the heaviest, averaging 83 pounds; Lincoln-sired lambs weighed 73.7; those sired by the Romneys, 73.2; and those by the Corriedales, 71.5 pounds. When the first yearling ewes were sheared at an average age of about 13 1/2 months, those sired by Lincolns produced fleeces averaging 14.85 pounds of unscoured wool. Those sired by Columbias produced 14.67 pounds; those by Romneys, 13.65; and those by Corriedales, 12.79. These yearling ewes are being tested for their efficiency as breeding ewes for lamb and wool production. x x x x x

Research on seasonal variation in the fertility of rams was conducted at Columbia, Mo., with Shropshires and Hampshires. In Shropshires the lowest fertility was found to be in July, August, and September, recovery occurring in late October with a high level of breeding activity and fertility from November through January. During February, March, and into early April sex desire was low. In the case of Hampshires the same trend was found, but fertility was never so low as in the Shropshires, and the rams reached a high level of activity 1 month earlier in the fall. x x x x x

Swine Investigations

In a study of the significance of birth weight, results on Poland China and Duroc-Jersey pigs fed individually revealed direct relationships between birth weight and rate and economy of gain. The results obtained in this test are in close agreement with results previously reported for pigs fed in various group-feeding trials in which differences of 1 pound in weight at birth resulted in 0.1 pound more average daily gain in favor of the heavier pig. x x x x x

Studies with swine at the United States Range Livestock Experiment Station in 1935 included record-of-performance comparisons with pigs of the Duroc-Jersey breed and the effect of different ages of weaning on subsequent performance. In the record-of-performance tests, pigs by two boars differing in phenotypic merit and from groups of sows of equal phenotypic merit showed a difference of 5 percent in both rate and economy of gain in favor of the inferior-appearing boar. These results add emphasis to the need for a progeny test as a supplement to phenotypic selection. x x x x x

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IT IS BETTER TO TRY, AND FAIL - THAN NOT TO TRY.

It is not the critic who counts; not the man who points out how the strong man stumbled, or where the doer of deeds could have done better. The credit belongs to the man who is actually in the arena; whose face is marred by dust and sweat and blood; who strives valiantly; who errs and comes short again and again because there is no effort without error and shortcoming; who does actually strive to do the deeds; who knows the great enthusiasm, the great devotions, spends himself in a worthy cause; who at the best knows in the end the triumph of high achievement; and who at the worst, if he fails, at least fails while daring greatly, so that his place shall never be with those cold and timid souls who knew neither victory nor defeat.

--Theodore Roosevelt

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Where so much is said, one-half will never be believed, the other never read. --Pope

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FEED CROPS AND LIVESTOCK OUTLOOK

The supply of feed grains per grain-consuming animal unit for the current feeding season is about the same as in 1934 but approximately 25 percent less than a year ago and the 1928-32 average. On the other hand the hay supply per hay-consuming animal unit is nearly one-third more than in 1934 and only 5 percent less than the 1928-32 average. The supply of by-product feeds per grain-consuming animal unit is expected to be about 10 percent larger than in 1934-35 and the 5-year average.

The total number of animal units on farms January 1, 1937, is expected to be about the same as a year earlier. There probably will be fewer cattle, horses, and mules, but more hogs, sheep, and chickens. Numbers of animals fed for market this year, August 1936-July 1937, will include more hogs and lambs but fewer cattle than were fattened in 1935-36.

Shortage in present feed supplies is primarily in grain. Hay supplies are approximately normal. Supplies of by-product feeds are about average. Imports of corn are expected to be above those of 1934-35 when they constituted about 2.5 percent of the season's production of corn. Pastures probably will furnish almost normal feed supplies this fall and winter except in the Northern Great Plains region. An increase in corn and barley acreage is expected in 1937.

Prices of all feed grains, by-product feeds and of hay will remain high during most of the 1936-37 marketing year. Inasmuch as the shortage of hay this year is less acute than in 1934, hay prices, while exceeding those of last year, are not likely to be as high as those following the 1934 drought unless the coming winter is abnormally severe. If feed grain and hay production in 1937 is near average, a greater than normal seasonal decline in prices of feed grains and of hay may be expected in the summer and fall of 1937.

The livestock-grain price ratio probably will be generally unfavorable to feeding during the coming winter and early spring, but later in the year it probably will shift so as to be favorable to feeding. If feed-grain production during the next few years is approximately average, the position of livestock producers will be more favorable than that of cash-grain farmers. It will take several years for livestock production to regain the level existing from 1930 to 1934. The outlook for dairymen, however, is somewhat less favorable than for producers of meat animals.

--From the 1937 Agricultural Outlook Report

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Science owes its effective ministry as much to the interpretive mind as to the creative mind. --Glenn Frank

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RECENT PUBLICATIONS

(Only Federal publications are available from Washington. Others listed may be obtained in most instances from the institution or agency issuing them. Do not write Washington for other than U.S.D.A. publications.)

Federal

"Farm Imports and National Prosperity" - U.S.D.A., Agricultural Adjustment Administration, Washington, D.C. - 11 pages, 9 charts, Sept. 1936.

"Effect of Different Methods of Wintering Beef Calves, in the Northern Great Plains, on Winter Gains and Feed Costs and on Subsequent Summer Gains" by W. H. Black, et al. - U.S.D.A., Bureau of Animal Industry. Tech. Bul. 529, Aug. 1936. 11 pages, 6 tables.

"The Vitamin Content of Some of the Principal Livestock Feeds" - U.S.D.A., Bureau of Animal Industry, A.N.D. Mimeograph No. 1. Oct. 1936. 4 pages.

"Crop Insurance" - U.S.D.A., Bureau of Agricultural Economics. Oct. 1936. A 26-page Mimeograph.

"1937 Agricultural Outlook" - by Bureau of Agricultural Economics and State Specialists, U.S.D.A.

"Sheep and Wool" - An Economics Handbook for Use of State Extension Specialists - U.S.D.A., Bureau of Agricultural Economics. 37 pages of tables and graphs. Oct. 1936.

"Statistical Results of Extension Work, 1935" by M. C. Wilson - U.S.D.A. Extension Circular 244, June 1, 1936. 52 pages. Mimeographed.

"Southern Forest Ranges from the Western Range" - U.S.D.A. Forest Service, Washington, D. C. - Senate Document 199, Separate No. 16, 12 pages, 1936.

State

"The Trench Silo, Its Use and Construction" by Gregg and Karns - Arkansas Extension Service Circular 390. June 1936. 8 pages.

"Horseflies of Arkansas" by H. H. Schwardt - Arkansas Experiment Station Bulletin 332. June 1936. 65 pages. illus.

"Hay and Pasture for Sows During Gestation and Lactation" by Edgar Martin - Arkansas Experiment Station Bulletin 336. June 1936. 17 pages.

"Screwworms in Florida" by Bruce and Sheely - Florida Extension Service Bulletin 86. Oct. 1936. 27 pages, 25 illus.

"Growing Hogs in Georgia" by Jones Purcell - Georgia Extension Service Bulletin 458. June 1936. 16 pages. illus.

"Swine Husbandry in Idaho" by Nordby and Gildow - Idaho Extension Service Bulletin 101. May 1936. 64 pages, 31 illus.

"It Still Pays to Farm Well" by H. W. Mumford - Illinois Extension Service Circular 458. July 1936. 31 pages, 9 illus.

"The Soybean" by W. L. Burlison - Illinois Extension Service Circular 461. Sept. 1936, 15 pages,

"Storing Farm Pork Supply" by W. T. Cobb - Louisiana Extension Circular 162. Apr. 1936. 4 pages.

"Sheep - Castrating and Docking Lambs" by C. L. Hill - Louisiana Livestock Leaflet, Vol. 1, No. 1. June 1936. 6 pages, 8 illus.

"Farm Work Stock - Intestinal Parasite Control and Breeding in Caldwell Parish" by Hopkins and Hill - Louisiana Livestock Leaflet Vol. 1, No. 2. 1936. 4 pages, 3 illus.

"Raising Sheep in Louisiana" by Snell and Hill - Louisiana Extension Service Circular 165. June 1936. 26 pages, 22 illus.

"Temporary Silos" by K. B. Huff - Missouri Extension Service Circular 346. July 1936. 8 pages.

"Stallion Management" by R. S. Hudson - Michigan Extension Service Bulletin 167. Aug. 1936. 31 pages. illus.

"The Effect of Feeds on the Quality and Palatability of Lamb" by Richardson and Dickson - Montana Experiment Station Bulletin 320. May 1936. 19 pages, 14 tables.

"Processing Feeds on Nebraska Farms" by Brackett and Lewis - Nebraska Experiment Station Bulletin 302. Aug. 1936. 24 pages, illus.

"Swine Erysipelas" by Van Es and McGrath - Nebraska Experiment Station Research Bulletin 84. Aug. 1936. 47 pages, illus.

"Drouth Rations for Oklahoma Livestock" by F. W. Beall - Oklahoma Extension Service Circular 341. 1937. 7 pages.

"Farm Dressed Pork and Sausages" by P. T. Ziegler - Pennsylvania Extension Service Circular 164. Jan. 1936. 11 pages. illus.

"Winter Forages for Fattening Hogs" by E. D. Kyzer et al. - South Carolina Experiment Station Circular 54. June 1936. 12 pages. 4 tables.

"The Trench Silo" by C. G. Cushman - South Carolina Extension Service Circular 121. Revised June 1936. 20 pages. 12 illus.

"Selecting Hogs" by E. M. Regenbrecht - Texas Extension Service Circular 106. 1936. 8 pages. illus.

"Preservation of Farm Products by Freezing" by Russell and Maddox - Washington Extension Service Bulletin 230. July 1936. 8 pages. illus.

Other

"The Mortage Lifter" - a Practical Hog Book, by various authors. 256 pages, published by Hog Breeder, Inc., Union Stock Yards, Chicago.

"The Golden Hoof" - a Practical Sheep Book, by various authors. 256 pages, published by Sheep Breeder, Inc., Union Stock Yards, Chicago.

"How to Select Percherons" by Ellis McFarland, published by Percheron Horse Association of America, Union Stock Yards, Chicago. 47 pages. illus.

"1937 Feeding Practices" - Bulletin No. 12, prepared by Educational Service, National Cottonseed Products Association, Inc., 1411 Santa Fe Bldg., Dallas, Texas. 47 pages. illus.

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